

Probing Interstellar Dust With The TPF-Coronagraph

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We show that TPF-C has the potential to detect the light scattered by interstellar grains along lines of sight passing near stars in our Galaxy. In the simple case of uniformly distributed dust, the relative brightness of the scattered light halo at a fixed angular offset from the star increases in proportion to the distance. The halo is observable around stars beyond about 100 parsecs and is expected to have little effect on the detection of planets around stars nearer the Sun. The color of the scattered light provides information on the compositions and sizes of the grains, while for Sun-like stars at about 1 kpc the structure of the halo may reveal the strength of the stellar wind.